Exhibit 3
Expert Report from Rutter Group

Analysis of Monex Atlas Account Trading Performance

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Rutter Associates, LLC

I. Introduction

1. Rutter Associates has been asked to analyze the performance of Monex's "Atlas" trading account (the "**Atlas Account**"). The Atlas Account provides off-exchange trading of gold, silver, platinum and palladium on a levered basis to retail clients, allowing them to speculate on margin against the prices of these precious metals. Rutter Associates based its analysis on ten sample accounts selected by staff of the Division of Enforcement of the Commodity Futures Trading Commission (CFTC). To analyze Atlas Account performance, we simulate alternative outcomes using the actual historical patterns of buys and sells over the life of each account and compare risk-return profiles for each account achieved with Atlas Account trades (the "**Atlas Account Execution**") and those achieved with futures contracts (the "**Futures Market Execution**") and Exchange Traded Funds (the "**ETFs Execution**"), both of which are more standard but functionally equivalent investment vehicles. We present the results of making the same trading decisions in the Atlas Account Execution, the ETFs Execution, and the Futures Market Execution to see how each investment would perform.

2. Additionally, we examine the *actual* trading results of each account to estimate the aggregate costs of trading and observe the frequency of buys and sells.

3. The Rutter Associates analysis indicates that identical strategies employing either the Futures Market Execution or the ETFs Execution dominate the Atlas Account Execution from a risk–return perspective. In particular we conclude that:

    a. An investor can always expect to earn a higher return with lower risk by choosing one of these functionally equivalent trading alternatives to the Atlas program;
    b. An informed and rational investor (one who understands fully available investment choices and who prefers more money to less) would not choose to trade via the Atlas Account Execution over the ETFs Execution or the Futures Market Execution alternatives;
    c. While our analysis is based on the ten sample accounts provided by the staff of the Division of Enforcement of the Commodity Futures Trading Commission (CFTC), the results flow from the cost structure of the Atlas Account itself, and not from any particular idiosyncratic features of the ten sample accounts. Thus we would expect to have

obtained the same results if additional accounts had been supplied to us for analysis.

II. Qualifications

4. An economist by profession, I have 30 years of experience working in the financial services industry and in particular, with financial derivatives.

5. Since 2010, I have been a co-owner and Head of Analytics of Rutter Associates LLC, a financial risk management advisory firm headquartered in New York City. Rutter Associates' practice includes: (1) general advisory work in the areas of market risk measurement and management, credit risk measurement and management, investment portfolio management and performance attribution; (2) valuation of financial instruments, most notably hard-to-value instruments such as structured credit assets and complex derivatives; (3) modeling and model validation relating to applications of quantitative finance; (4) consulting with regulators in supervisory examinations; and (5) consulting with respect to the resolution of financial markets disputes. I am active in each of these areas of Rutter Associates' practice.

6. From 2009 to 2010, I served as Senior Vice President and Head of Risk Analytics at Fidelity Investments' institutional arm, supervising trading risks in Fidelity's Capital Markets Group among other responsibilities for risk and valuation quantification across the organization. From 1998 through early 2009 I was Managing Director and Group Head of Capital Planning and Risk Analysis at Ambac Financial Group with diverse responsibilities, including credit portfolio risk management of Ambac's book of contingent liabilities, market risk management of Ambac's swap desk and investment portfolio to regulatory and economic capital planning. For eleven years beginning in 1987 I held a number of positions at The Chase Manhattan Bank from Managing Director and Group Head of Treasury Analytics to Vice President and Group Head of Fixed Income and Mortgage Research.

7. From 1988 to 1994 I served as Adjunct Associate Professor of Economics at Hunter College of the City University of New York where I taught graduate courses in Corporate Finance, Financial Economics, Macroeconomics and Microeconomics and supervised M.A. theses.

8. My experience in over the counter ("OTC") and exchange-traded derivatives is both on the buy-side and sell-side. At Chase Manhattan, I was responsible for designing OTC derivative hedge protocols for products such as non-maturity deposit liabilities and mortgage servicing rights assets. Additionally, I was called upon to assist the Chase Derivatives Products business in consulting for clients in matters concerning their usage of OTC derivative products. At Ambac, I had direct risk management responsibility

for all derivative exposures, including municipal interest rate derivatives and credit derivatives. My doctoral dissertation explored the price discovery function of futures contracts as one factor enabling rational expectations outcomes.

9. I speak frequently at conferences and courses presented by organizations including Risk Magazine, Marcus Evans, NYU Courant Institute of Mathematical Sciences, Georgetown University, The University of Pennsylvania, the Health Management Academy and the Insurance Regulatory Examiners Society. Over the past ten years, I have published a number of articles and research papers, which are listed in my Curriculum Vitae, which is attached as Appendix A.

10. I earned a Ph.D. in Economics from Brown University in 1987, an A.M. in Economics from Brown University in 1981 and a B.A. from the University of Pennsylvania in 1979.

11. I served as an expert in a matter in the United States Bankruptcy Court for the Southern District of New York. I wrote two expert reports, sat for a deposition and testified at trial.

12. I was engaged as an expert in two jointly administered matters in the United States Bankruptcy Court for the Southern District of New York for which I wrote two expert reports. The matter was settled before I was deposed.

III. Materials Reviewed

13. In preparing this Expert Report, I have reviewed and relied upon relevant portions of the documents set out in Appendix B.

IV. Independence

14. I do not have any affiliation with any of the parties to this matter or their attorneys. Neither Rutter Associates nor I personally have any interest (financial or otherwise) in the outcome of this litigation.

15. The opinions I have expressed represent my professional opinions on the matters to which they refer. They are based upon information and documents available to me at this time. If I later learn of evidence, facts or other information not currently available to me, I reserve the right to supplement or revise my report and my conclusions, if warranted. I also reserve the right to supplement this report to take into account testimony or opinions offered by other experts in this case.

V. Support from Rutter Associates Staff

16. In the analysis performed in preparation of this report, I have been supported by a team of quantitative analysts at Rutter Associates, each of whom has a graduate degree in financial or electrical engineering from Columbia University, Cornell University or NYU (our electrical engineer is also a CFA Institute Certified Financial Analyst and a GARP Certified Financial Risk Manager). All work performed by Rutter Associates has been performed under my direct supervision.

17. My current rate for this engagement is $500 per hour.

18. My compensation is not contingent on the opinions that I render or the outcome of this litigation.

VI. The Atlas Account

19. Monex promotional literature states that, "The Atlas Account from Monex Deposit Company and Monex Credit Company provides a unique and powerful way to acquire precious metals with the strength of investment leverage combined with the safekeeping security of independent depository storage."

20. Through its Atlas Account, Monex offers retail customers the ability to open margined trading positions to speculate on prices of gold, silver, platinum, and palladium. Monex requires that Atlas Account customers deposit funds to serve as margin for open trading positions. Monex's initial margin requirement is generally 22-25% of the value of a trading account's open positions. With an initial margin requirement of 25%, for example, a trader could deposit $25,000 in an Atlas Account and open a position valued at $100,000.

21. Atlas Account traders can place "long" or "short" trades. Traders opening "long" positions speculate that the price of a metal will go up; traders opening "short" positions speculate that the price of a metal will go down. Margin calls are made when the value of a trading position has declined below a required equity threshold and a customer's positions may be liquidated without notice upon the failure to meet a margin call. Monex may also liquidate positions at its discretion (regardless of an individual customer's positions) in times of high volatility or if Monex itself is failing to comply with obligations to its creditors.

22. No physical delivery to the customer is ever required, and short positions seem to be pure derivative transactions between Monex and the client, as Monex need execute no external trades. Customers are charged a bid-offer spread, commissions, fees, and interest (generally the Prime Rate + 2.75%) on these transactions.

VII. Rutter Associates Simulation Methodology

23. In order to compare the performance of the Atlas Account Execution to the precious metals ETFs Execution and the Futures Market Execution, Rutter Associates employed the following methodology. First, we obtained the trading activity, cash flows (deposits and withdrawals), and ending balances of the ten sample accounts from the trading history of each of the sample accounts provided by the CFTC. These accounts are identified as "Bar", "Abeel", "Addington", "Castillo", "Gehrisch", "Giampavolop", "Hough", "Minke", "Walker", and "Samaan".

24. Specifically, Rutter Associates received a trade spreadsheet for each account detailing the account's trade history, and selected monthly account statements in PDF form.

25. In all three modes of execution (the Atlas Account Execution, the ETFs Execution and the Futures Market Execution), we assume that all commodity holdings are liquidated at the close of each account. Each of the three simulations for each account is reflective of the account's actual historical trading history – and transaction costs explain virtually all the differences in performance among the three modes of execution. There is a small difference (or *basis*) between futures and spot (or *cash*) prices reflected in the futures price simulation in which spot and futures are correlated between 95% and 99% and this basis is not significant to our results.

26. At the core of the analysis is a simulation of random spot price evolution and futures price evolution (a continuous first nearby contract calculated by Rutter Associates) anchored on the spot prices and futures prices of gold, palladium, platinum and silver on the first day of each of the ten sample accounts. The idea here is to generate thousands of alternative random paths ("random", but representative of real-world possibilities) of spot and futures prices so that we can be sure that any conclusions we reach can be generalized across differing market price experiences (e.g. rising markets, falling markets, and markets characterized by rising and falling prices). In other words, running these thousands of alternative scenarios allowed us to be sure that the results actually obtained were not simply due to the unique price paths these metals happened to experience over the time frames examined but would have obtained in virtually any market scenario.

27. As of the start date of each of the ten sample accounts we estimate 30-day historical price volatilities and a 1-year historical look-back correlation matrix covering spot and futures prices of each commodity. These look-back horizons are typical in financial analysis. Combined with an assumed price trend of zero (meaning that we do not build in a tendency for either rising or falling commodity prices), these volatilities and correlations drive 10,000 scenarios of daily spot and futures price evolution of each commodity over

the lives of each of the ten sample accounts. Ten thousand scenarios is a sufficient number to capture the bands of plausible price movements over the limited time periods during which each account was active.

28. The ETFs Execution and the Atlas Account Execution pricing is driven by our *spot price* simulations. For the ETFs Execution, we apply the side of the bid-offer ETFs spread sourced from Bloomberg that is appropriate for a buy or a sell (we use the one-month daily average leading up to each account's start date) and we apply an $8 transaction fee (which is typical for retail ETFs trades). For the Atlas Account pricing, we apply the appropriate side of the bid-offer spread (based on whether a buy of a sell) that we estimate from actual trades by product (the precious metal transacted and the form in which transacted, e.g., coin, leaf, bar) and by account, service fee, and commission. We assume that aggregate borrowing costs are the same for leverage whether the account holder speculates via the ETFs Execution or the Atlas Account Execution.

29. Our *futures price* simulations drive pricing for the Futures Market Execution. Of course the correlation matrix we discuss in paragraph 27 imposes appropriate correlation between futures and spot price simulations and among the four different metals. We apply the side of the bid-offer spread as sourced from Bloomberg that is appropriate for a buy or a sell (again, we use the one-month daily average leading up to each account's start date) and transaction fees as sourced from the Chicago Mercantile Exchange (exchange fees) and a sample of brokers (broker fees). Of course, the cost of leverage in futures contracts is much lower than costs in the cash markets – thus we ignore the opportunity costs of initial and variation margin that is posted against a futures contract.

30. Appendix B summarizes the sources of our data and the transformations of those data we apply.

31. At this point, we have 10,000 simulations of prices driving performance of each mode of execution (inclusive of relevant costs) over the lives of each of the ten sample accounts. It is now a straightforward exercise to apply these prices to each trade in each account and ultimately simulate total dollar returns for each of the ten sample accounts *three times*: once assuming the Atlas Account Execution, once assuming the ETFs Execution and once assuming the Futures Market Execution.

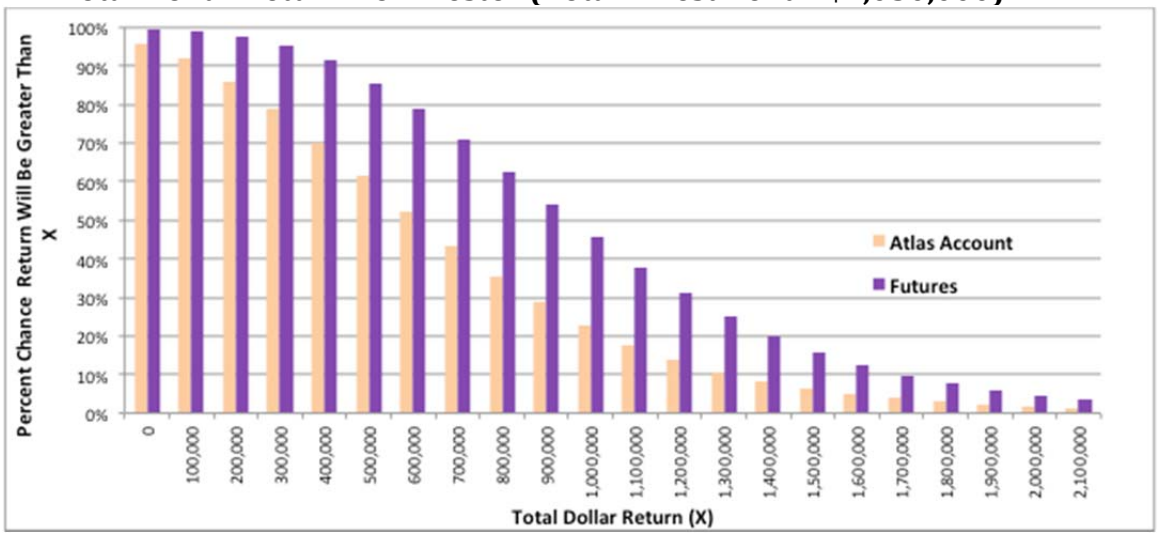
32. These simulations show that due to significantly higher costs in the Atlas Account Execution, both the ETFs Execution and the Futures Market Execution dominate the strategies of each of the ten sample accounts executed via the Atlas Account Execution in a risk/return sense. The precise

form of this domination is "first-order stochastic dominance"[1], i.e., at any given level of potential total dollar return, the probability of a lower return is higher given the Atlas Account Execution than it would be given the ETFs Execution or the Futures Market Execution. Alternatively, at any given level of potential total dollar return, the probability of a higher return is lower given the Atlas Account Execution than it would be given the ETFs Execution or the Futures Market Execution. The strict criterion for first-order stochastic dominance is a not often met, but is one that Rutter Associates looks for commonly in evaluating alternative investment strategies because satisfaction of that criterion allows us to state unequivocally that any investor preferring more money to less will prefer the investment that dominates in a first-order stochastic sense.

33. The charts and tables in Appendix C demonstrate this result for all ten sample accounts in the sample: in every case, the cumulative probability distribution of total dollar return given the Atlas Account Execution lies to the left of the probability distributions of total dollar returns given the ETFs Execution or the Futures Market Execution. In every single case for each of the ten sample accounts, first-order stochastic dominance of the Futures Market Execution or the ETFs Execution over the Atlas Account Execution is established. As discussed above, the clear implication is that no informed rational investor would choose to speculate in precious metal via the Atlas Account given the available functional equivalents. As an example, we present the simulation results for the "Bar" account (comparing only the Atlas Account Execution to the Futures Market Execution for simplicity) in Chart 1 below:

[1] There is a rich literature on investment decision-making and on stochastic dominance in particular. See for example: Haim Levy, Stochastic Dominance: Investment Decision Making under Uncertainty, (2d ed. 2006).

Chart 1
Total Dollar Return To Investor (Total Investment = $1,050,000)



(Identical Investment Amounts for Each Mode of Execution)

34. Note, for example, that the probability of a total dollar return to the client greater than $1mm is only 23% given the Atlas Account Execution and rises to twice that level (46%) given the Futures Market Execution. Since this type of relationship obtains for any level of total dollar return chosen, this illustrates the definition of "first-order stochastic dominance."

35. No matter what the investor's risk tolerance/preference may be, as long as the Futures Market Execution dominates the Atlas Account Execution in the sense of "first-order stochastic dominance," no informed rational investor would choose the Atlas Account Execution.

36. The charts we provide in Appendix C represent this relationship graphically. Charts 2 and 3 demonstrate alternative ways to interpret them, each of which leads to the conclusion that the Atlas Account Execution is not preferred by a rational, informed investor (the total investment/outflow by the investor is $1,050,000):

Chart 2
The Probability of a Dollar Return Less than $800K is 37% if using the Futures Market Execution, but 64% if using the Atlas Account Execution

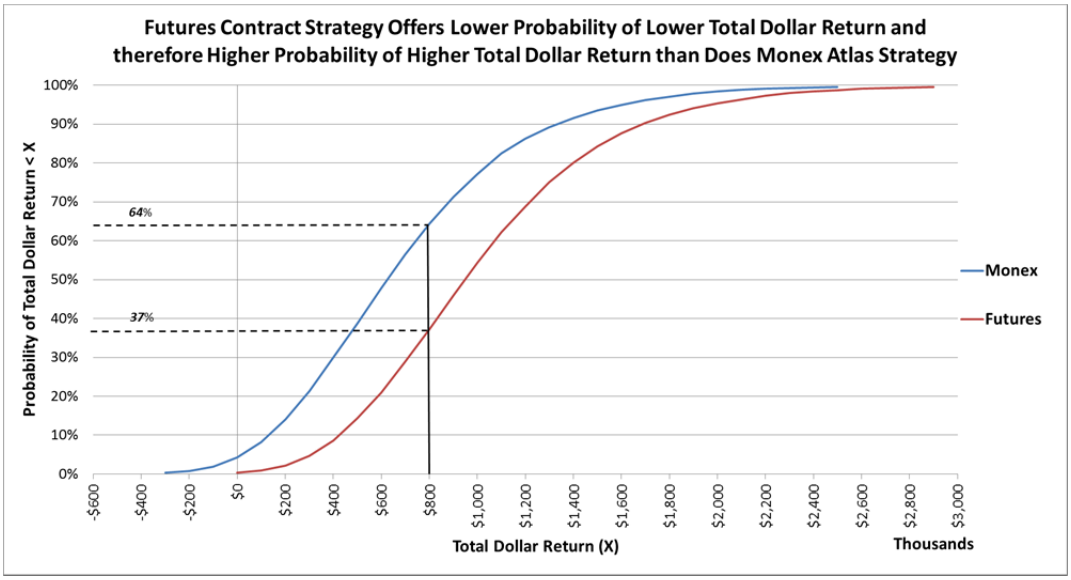
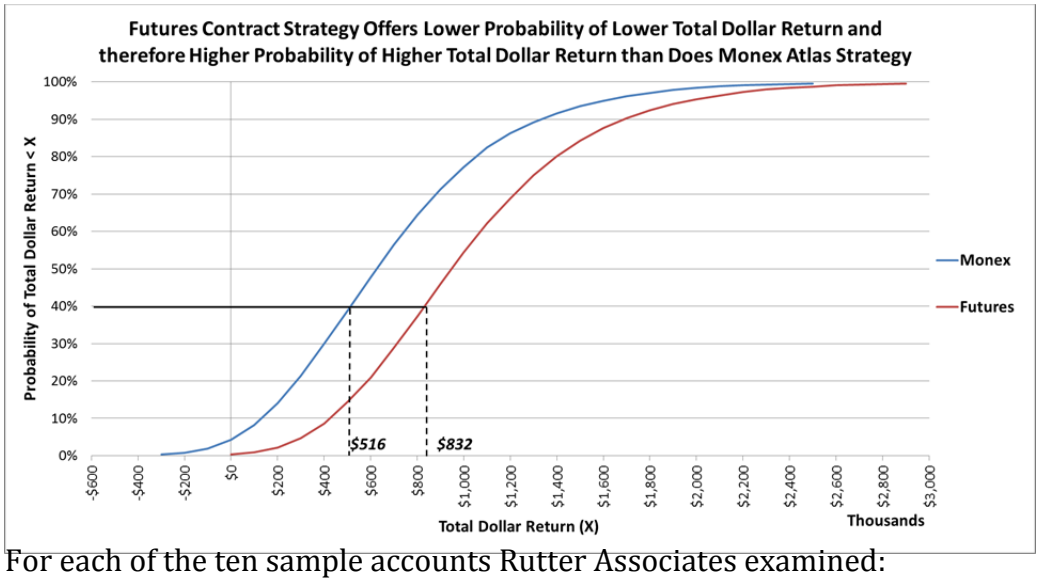


Chart 3
There is a 40% Probability that the Atlas Account Execution will Return Less than $516K (a 60% Probability that it will Return More than $516K)
There is a 40% Probability that the Futures Market Execution will Return Less than $832K (a 60% Probability that it will Return More than $832K)



37. For each of the ten sample accounts Rutter Associates examined:

    a. At any given level of total dollar return, the Futures Market Execution and the ETFs Execution revealed a higher probability of a higher return than did the Atlas Account Execution.

b. At any given level of total dollar return, the Futures Market Execution and the ETFs Execution revealed a lower probability of a lower return than did the Atlas Account Execution.
c. At any given probability level, the dollar return of the Futures Market Execution and the ETFs Execution is higher than the dollar return of the -Atlas Account Execution.

38. These findings establish that the Futures Market Execution and the ETFs Execution are preferred unambiguously to the Atlas Account Execution. We believe that these findings are generic and would not be limited to the set of trades that were provided to us; fees and costs are at the heart of the issue and there is no reason to think that these would not apply across the entire universe of Atlas Account trades.

VIII. Review of Historical Details of the Ten Sample Accounts

39. Rutter Associates reviewed the trade histories of each of the ten sample accounts selected by the CFTC in order to observe frequency of trading, frequency of partially or totally offsetting trades, and costs of trading and account maintenance relative to levels of investment and profit and/or loss. Table 1 presents a summary of our findings.

Table 1
Account Histories

Account name	ABEEL	ADDINGTON	BAR	CASTILLO	GEHRISCH	GIAMPAVOLOP	HOUGH	MINKE	SAMAAN	WALKER
Starting day	2/17/12	11/21/13	8/9/13	2/22/13	8/5/11	8/1/13	9/11/12	8/11/11	10/17/11	12/27/11
Ending day	7/31/15	6/30/16	12/2/14	6/29/16	8/26/13	6/14/16	2/8/16	6/29/16	6/29/16	6/30/16
Trading days	901	681	343	874	537	749	890	1275	1228	1178
Number of trades	34	75	62	150	51	37	236	62	147	133
Number of trades in opposite direction to previous trade	25	30	34	69	21	12	94	38	103	67
Number of trades entirely offsetting previous trade	8	6	9	8	1	4	15	18	11	9
Number of trades flipping from long to short or short to long	0	4	1	18	0	0	2	13	17	3
Total fees, commissions and charges to client	$23,362	$27,142	$353,951	$37,104	$176,496	$35,436	$222,885	$40,286	$551,642	$174,424
Interest, credit and service fees:	$2,177	$7,681	$85,206	$7,491	$64,661	$6,098	$54,384	$4,776	$80,328	$24,510
Commission:	$8,486	$182	$0	$950	$13,389	$4,547	$7,100	$3,989	$161	$1,144
Estimated bid-offer charges:	$12,699	$19,279	$268,745	$28,663	$98,446	$24,791	$161,401	$31,521	$471,153	$148,770
Total client cash outlay	$30,000	$32,577	$1,050,000	$102,815	$939,500	$490,488	$825,600	$63,511	$1,640,000	$366,723
Terminal balance plus cash inflows to client	$396	$28,535	$312,814	$78,820	$412,576	$151,273	$310,663	$16,212	$721,933	$70,998
Fees, commissions and charges relative to total client cash outlay	78%	83%	34%	36%	19%	7%	27%	63%	34%	48%
Terminal balance plus cash inflows to client relative to total client cash outlay (proxy for investment return)	-99%	-12%	-70%	-23%	-56%	-69%	-62%	-74%	-56%	-81%
Terminal balance plus cash inflows to client relative to total client cash outlay (proxy for investment return) assuming no fees, commissions and charges	-21%	71%	-36%	13%	-37%	-62%	-35%	-11%	-22%	-33%

40. The accounts range from moderately active to very active, from one trade every four days (the Hough account) to about one a month (the Abeel account). Three accounts show some evidence of active speculation with over 10% of trades representing flips from long to short or short to long positions. Each account employed leverage accounting for interest, credit and service fees.

41. Generally speaking, fees, commissions and charges account for a large drag on the cumulative returns in these accounts, averaging 30% across the ten sample accounts with a minimum of 7% and a maximum of 83%. This means that between 7 cents and 83 cents of every dollar invested was spent on fees commissions and charges, and on average across all 10 accounts, 30 cents out of every dollar invested was spent on fees, commission and charges.

42. This trading history of the ten sample accounts shows vividly why the Futures Execution and the ETFs Execution dominate the Atlas Account Execution from a risk/return standpoint: the Atlas Account Execution fees are substantially elevated above levels charged in alternative models of executing what are fundamentally the same trades. Compared to the average 30 cents out of every dollar invested in the Atlas Account spent on fees, commission and charges, the ETFs Execution results in average aggregate costs of 8 cents out of every dollar invested, and the Futures Market Execution results in 3 cents of costs per dollar invested.

APPENDIX A

Appendix A: Curriculum Vitae

ROBERT D. SELVAGGIO

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Summary	Doctorate in economics with thirty years experience in financial economics, credit and market risk management, fixed income research and managing teams of technical and non-technical professionals. Specific expertise in integrating capital markets and "banking book" applications of asset/liability management and market/credit risk management. Implemented term structure, OAS, and prepayment models (voluntary and involuntary), portfolio-wide credit risk and market risk models and metrics, and risk-adjusted performance measures based on economic and regulatory capital at top-tier broker/dealer, municipal bond insurance and banking institutions. Developed risk/return management tools and protocols for large investment portfolios comprised of equities, fixed income products, derivative, structured products and alternatives. Designed derivative and CLN-based hedge strategies to mitigate credit risks associated with portfolios of corporate and structured finance CDS and guarantees. Developed static option replication programs to effect cost-effective hedge strategies against mortgage prepayment and other market risks relative to costlier and opaque OTC alternatives. Established and energized executive risk management committees. Facility in explaining economic and statistical concepts to non-experts and in achieving business unit "buy-in" for risk management initiatives. Frequent speaker and panelist at risk management events since the mid 1990s.
Professional Experience	**Co-Owner and Head of Analytics, Rutter Associates** **New York, NY October 2010-present.** Rutter Associates provides advisory services in the areas of market and credit risk management, credit portfolio management, regulatory capital, economic capital and risk adjusted performance measurement, exotic derivatives and levels 2 and 3 asset valuation, model review and validation, hedge analysis, investment portfolio risk/return measurement and management, insurance regulation and litigation support. **Partner, Ucayali Capital Partners** **New York, NY April 2010 – October 2010.** Established risk management and structured finance framework and analytics for employing private investor funds to support the credit and operational risks of the payables generated by tier 1 and tier 2 oil companies to refineries in the international oil

trade. Structured futures contract cross hedges to reduce price risk of lifts.

Senior Vice President, Risk Analytics

Fidelity Investments Institutional, New York, NY April 2009-April 2010.

Hired by Chief Risk Officer to supervise trading risks in Fidelity's Capital Markets Group, establish the analytical background for the identification, assessment, measurement and transfer of risk and provide the thought leadership foundation for economic capital, market risk and credit-related issues, pricing, balance sheet utilization, and return on invested equity.

- Implemented first VaR limits for Fidelity Capital Markets and first desk-level risk reports.
- Introduced economic capital attribution, RaRoC and Economic Value Added (EVA) analysis for Fidelity Institutional based on credit, market and operational risk assessments of Capital Markets businesses. Developed working prototype for first trading portfolio credit model to be applied to Fidelity Institutional business. Worked to roll out risk adjusted performance metrics across the organization.
- Developed prototype for potential credit exposure, potential collateral positing and CVA analytics for limit setting and FAS157 valuation of OTC foreign exchange derivatives using RiskMetrics architecture. Represented first implementation of PCE/CVA metrics at Fidelity, and successful efforts with FX derivatives will serve as a model of best-practice counterparty credit risk management across the firm. Suggested contingent CDS strategies for hedging CVA risks.
- Chaired "market risk" stream of firm-wide risk transformation effort identifying "break the buck" risk of MMMFs and need for mutual fund and investor portfolio risk transparency (e.g. providing investors and asset manager clients with nightly VaRs, historical and hypothetical stress test sensitivities and risk attribution analysis) as key areas for further development.
- Provided risk and valuation analytics to justify option trading programs to senior management by securities lending desk including reversals and conversions that contributed over $20 million EVA to Fidelity Institutional in 2009.

Managing Director and Group Head, Capital Planning and Risk Analysis

Ambac Financial Group, New York, NY 1998 – March 2009.

Hired by CEO and Vice Chairman with assistance of Capital Markets Risk Advisors (CMRA) to establish independent Portfolio Risk Management function covering Municipal Bond, Structured Finance, and all other insurance liabilities. Built team of risk management professionals from banking industry and academia.

- Led a group of ten risk professionals.
- Created and maintained Ambac's first proprietary portfolio credit risk model capturing Public Finance, Structured Finance, and all other insurance exposures. Provided Portfolio Risk Management Committee with monthly portfolio credit risk reports.
- Created and maintained Ambac's first Economic Capital, RaRoC and SVA models used for performance attribution, product pricing and risk transfer/reinsurance analysis.
- Constructed in-house version of Moody's capital adequacy model and re-built

proprietary version of S&P's depression loss model. Models used to forecast capital adequacy.

•Implemented VaR and stress-test system for market risk of Investment Portfolio, Municipal Swaps business, GIC business and credit derivatives/CDO business. Provided daily risk reports for compliance against limits.

•Responsible for attribution of economic capital across the organization using internal portfolio credit risk model and market risk analytics.

•Responsible for modeling guarantees and CDS referencing ABSCDO tranches and the underlying MBS for quarterly disclosure of impairments and expected and stress losses to guide remediation effort and statutory and GAAP reserves.

•Key member of team responsible for highly successful Ambac capital raise at height of CDO/MBS crisis (raising $1.5 billion of capital despite market cap of roughly $700mm)

•One of three executives invited to US Treasury to discuss potential TARP funding of monolines in December 2008.

•Member of Public Finance and Structured Finance Senior Credit Committees and Vice Chair of Portfolio Risk Management Committee.

Managing Director and Group Head, Treasury Analytics Group

The Chase Manhattan Bank, New York, NY 1996 - 1998.

•Led a group of seven analysts.

•Designed and implemented new A/L model based on option analytics targeting Chase's Economic Value of Portfolio Equity (EVPE) for stress testing and Value-at-Risk (VaR) metrics. Successfully presented aspects of new model to ALCO and BOD for approval.

•Created and implemented a Monte Carlo module for VaR taking in over 20,000 nightly risk factor inputs applied to contingent claims for Chase Manhattan's Market Risk Management Group. Successfully presented methodology to Federal Reserve for approval.

•Provided analyses to support transfer pricing, capital allocation, value added hedging and product pricing.

Vice President and Group Head, Fixed Income & Mortgage Research

The Chase Manhattan Bank, N.A. New York, NY 1992-1996

•Directed a group of six finance professionals.

•Designed successful option-based hedge program during 1992-1993 refinance waves to protect mortgage servicing rights (portfolio value in excess of $700mm). Applied proprietary methodology to derivative marketing effort toward mortgage banking industry, contributing to over $10 billion derivative sales. Model was used by Bear Stearns' fixed income derivatives marketing team until 2007. Designed "risk point" hedge model for auto loan warehouse.

•Implemented stochastic holding period return and value-at-risk methodologies for mortgage pass-throughs, CMOs, and servicing rights.

•Created and implemented 2-factor yield curve risk model for bank Asset/Liability management, allowing concurrent management of "shift" and "twist" risk using GARCH methodology to forecast factor volatilities.

	•Developed stochastic core deposit valuation models consistent with monetary theory and option pricing theory. Valuations used in business analysis as well as hedge applications and 10Q disclosures. •Presented theory and applications of Chase Asset/Liability management analytics to bank examiners in formal papers and seminars. **Senior Asset/Liability Risk Analyst** **The Chase Manhattan Bank, N.A. New York, NY 1987-1992** •Modeled term structure of market interest rates (i.e. Treasury and Eurodollar) and administered rates (e.g. MMDA and prime before latter was tethered to fed funds rate). •Provided forecasts and risk assessment of net interest income and balance sheet volumes using Chase proprietary A/L modeling software. (Gap analysis and NII simulation). •Developed model for credit risk evaluation and capital allocation based on default premia embedded in publicly traded debt. **Adjunct Associate Professor of Economics** **Hunter College of The City University of New York, 1988-1994** •Graduate courses in Corporate Finance, Financial Economics, Macroeconomics and Microeconomics. •Directed M.A. theses. **Macroeconomist, Thomson McKinnon Securities, NY, NY 1986-1987** •Macroeconometric forecasting and Fed watching. •Co-authored weekly Credit Market Prospects and monthly Economic Highlights and Strategy Recommendations. **Research Associate, Chase Econometric Associates, Inc. Bala Cynwyd, PA 1979-1980.** Econometric Peak-load forecasting for electric and gas utilities including Baltimore Gas and Electric and Toledo Edison.
Education	**Brown University**, Providence, Rhode Island Ph.D., Economics, 1987 A.M., Economics, 1981 **University of Pennsylvania**, Philadelphia, Pennsylvania B.A., Economics, 1979 Minor concentrations in Chemistry and Mathematics.
Significant Cited Publications	**"Using the OAS Methodology to Value and Hedge Commercial Bank Retail Demand Deposit Premiums"**, in Frank J. Fabozzi and Arsuo Konishi, eds., *Handbook of Asset/Liability Management*, rev. ed., Irwin, 1996. **"An Options Approach to Valuing and Hedging Mortgage Servicing Rights"**, in Frank J. Fabozzi, ed., *Handbook of Fixed Income Options*, rev. ed., Probus, 1996. **"Observations on the Monoline Meltdown"** Guest Commentary, Kamakura Corporation, March 2010 (www.kamakuraco.com)

	"**Economic Value of OTC Derivatives used by Non Financial Firms",** A. Blater, C. Cerria, E. Hughson, and R. D. Selvaggio, *Journal of Applied Finance* – no. 2, 2014 **"Three Lessons of and Since the Financial Crisis"**, *The Journal of Structured Finance*, Summer 2017.
Selected Seminar Presentations	**Presentation to Wharton School of the University of Pennsylvania** **Spring 2017** "OTC Derivative Issues in Financial Consulting" **Presentations to Commodity Futures Trading Commission** **Autumn 2016/Winter 2017** "Advanced OTC Derivatives Valuation: XVA" **Presentation to NYDFS** **Spring 2016** "Insurance Company Investment Portfolios: What We Look for in Risk, Return, Process and Strategy" **Marcus Evans: Applied Credit Portfolio Management and Economic Capital** **February 2015** Course Tutor for Two-Day Event **Marcus Evans: Stress Testing and Economic Capital** **May 2014** Course Tutor for Two-Day Event **Guest Seminar: NYU Courant Institute of Mathematical Sciences** **April 2014, New York** "Detecting Collusion and Manipulation in Libor and ISDA Fix" **Marcus Evans: CVA, Funding and Valuation for Derivatives** **May 2012, New York** "Introduction to CVA" **Guest Seminar: NYU Courant Institute of Mathematical Sciences** **April 2011, New York** "Valuation of Derivatives in the Context of Litigation" **Guest Seminar: The Health Management Academy Investment Strategy Conference** **April 2011, Dallas, Texas** "Issues in Risk Allocation and Budgeting for Institutional Asset Management" **Risk Magazine's Implementing an Enhanced Approach to VaR** **August 2010, New York** "After the Crisis: Toward More Robust VaR" **Risk Magazine's RISK USA 2009** **October 2009, New York** "Counterparty Credit Risk: Exposure, Value and Recent Events" **Risk Magazine's RISK USA 2008** **October 2008, New York** "The Competing Hazards of Prepayment and Default in Mortgage Credit Risk" **Guest Lecture: Georgetown University** **October 2008, Washington, DC** "Economic Capital and Risk Adjusted Return: Performance Measurement in the Finance Industry"

	Incisive Training: CDOs After the Crisis **September 2008, New York** "Valuation and Risk Assessment of ABS CDOs" **Guest Lecture: Society of Insurance Financial Management** **June 2008, New York** "Challenges of the Financial Guarantee Sector: A Risk Management Perspective" **Risk Magazine's Credit Risk Modeling for Tomorrow's Market** **March 2008, New York** "LGD Modeling for Portfolio Credit Risk Assessment" **Guest Lecture: Georgetown University** **October 2007, Washington, DC** "The Valuation and Risk Management of Single-Name CDS and CDO Tranches" **Risk Magazine's Advanced Credit Risk Measuring and Modelling Techniques** **February 2007, New York** "Stress Testing and Portfolio Credit Risk"
Honors	**"Excalibur" Award (1992)**. One of 100 Chase employees recognized in inaugural year of award for best exhibiting five values of: professionalism; quality; customer focus; respect for each other; and teamwork. **University Fellow**, Brown University.
Personal	Married: Lisa Sammaritano, M.D., Professor of Medicine, Cornell University Medical College and Attending Rheumatologist, Hospital for Special Surgery/Cornell University Medical Center. Three adult children. 5th Dan Master Tae Kwon Do and Fighting Instructor. Competitive Rower and US Rowing Level I Certified Coach.

APPENDIX B

Appendix B: Materials Reviewed

Materials Driving Account Simulations

	Volatility	Correlation	Bid-ask charge	Transaction fee	Borrowing cost	Price
Monex Atlas Trades	Calculated From 1 month history of daily mid-market spot price	Calculated from 1 year history of daily spot mid-price	Ratio extracted from Monex trade spreadsheets by Product and by Account	Lump sum Extracted from Monex trade spreadsheets by Account	Lump sum Extracted from Monex trade Spreadsheets by Account	Spot Bloomberg ticker: XAU,XAG,XPD,XPT
Futures	Calculated From 1 month history of daily mid-market futures price	Calculated from 1 year history of daily mid-market futures price	Ratio Calculated from average of 1-month historical bid-ask prices	Exchange fee+ broker fee, from CME Group and sample of brokers	$0	Constructed first nearby future price. Due to the small liquid of future near to expiration, we roll the futures contract on the 1st day of each expiration month.
ETFs	Calculated From 1 month history of daily mid-market spot price	Calculated from 1 year history of daily mid-market spot price	Ratio Calculated from average of 1-month historical ETF bid-ask prices	$8 per transaction, from sample of brokers	We use Monex Borrowing Cost for each Account	Spot Bloomberg ticker: XAU,XAG,XPD,XPT; ETF Bloomberg ticker: GLD, SIVR, PALL, PPLT

Background Materials

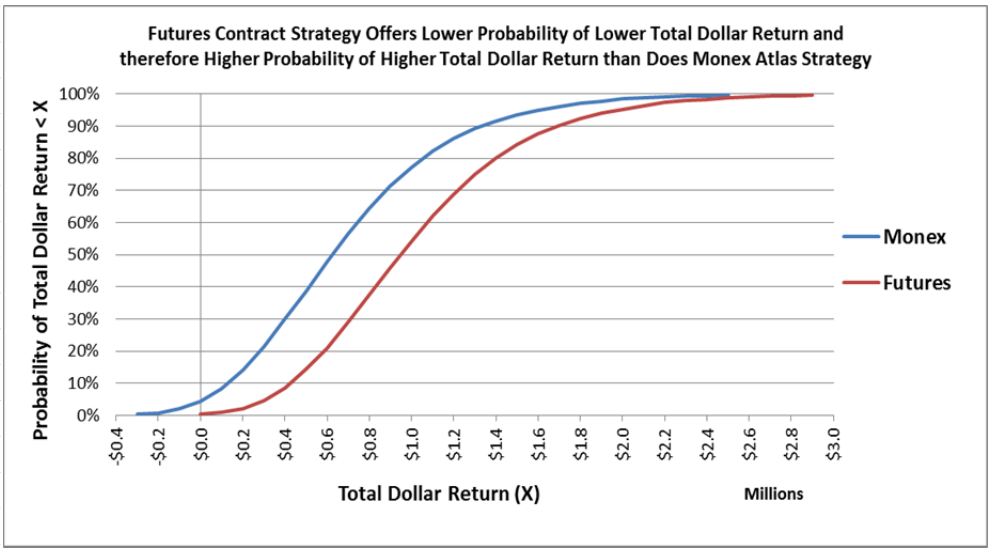
- Description of methodology used by CFTC Staff to select sample accounts
- Statements and account data from ten sample accounts
- Declaration of Louis Carabini in Support of Monex's Wells Submission (5/27/2016)
- Supplemental Declaration of Louis Carabini In Support of Monex's 12/5/2016 Supplemental Wells Submission
- MNX-CFTC-01245738-39 (Atlas Simulator Example)
- MNX-CFTC-00986239 (Monex Interest Rate figures)
- MNX-CFTC-00531236 (AR Commission Plan from Desktop Guide)
- Data dictionaries
- Monex document titled "A Guide to Your Monthly Statement"
- MNX-CFTC-01260125 (Spread Survey)
- MNX-CFTC-01260404 (Storage Rates by Product)

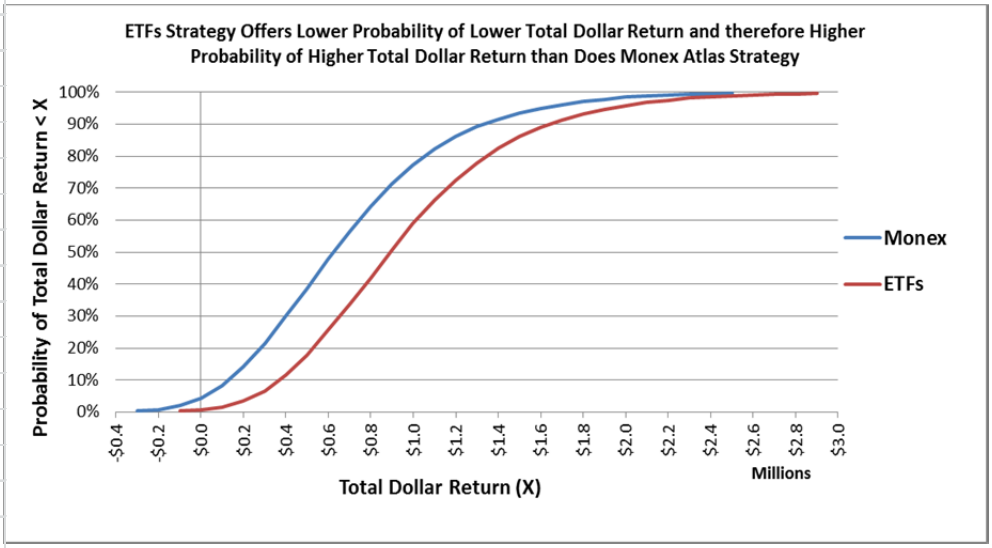
APPENDIX C

Appendix C: Risk/Return Profiles of the Ten Sample Trades

Bar Transaction

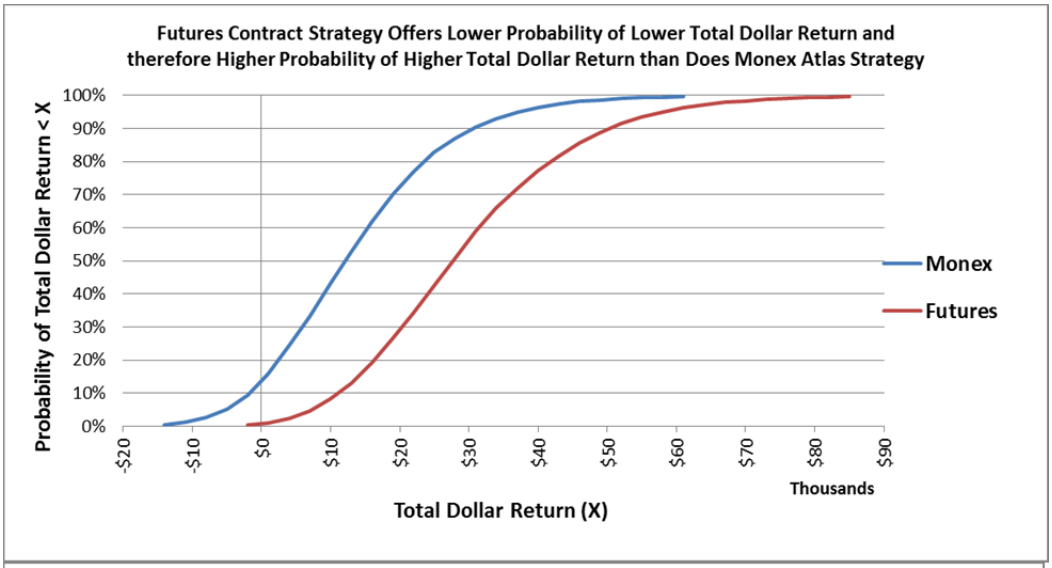
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$400,000	0%	0%	0%
-$300,000	0%	0%	0%
-$200,000	1%	0%	0%
-$100,000	2%	0%	0%
$0	4%	0%	1%
$100,000	8%	1%	2%
$200,000	14%	2%	3%
$300,000	21%	5%	7%
$400,000	30%	9%	12%
$500,000	39%	14%	18%
$600,000	48%	21%	26%
$700,000	56%	29%	34%
$800,000	64%	37%	42%
$900,000	71%	46%	51%
$1,000,000	77%	54%	59%
$1,100,000	82%	62%	66%
$1,200,000	86%	69%	72%
$1,300,000	89%	75%	78%
$1,400,000	92%	80%	83%
$1,500,000	94%	84%	86%
$1,600,000	95%	88%	89%
$1,700,000	96%	90%	91%
$1,800,000	97%	92%	93%
$1,900,000	98%	94%	95%
$2,000,000	98%	95%	96%
$2,100,000	99%	96%	97%
$2,200,000	99%	97%	98%
$2,300,000	99%	98%	98%
$2,400,000	99%	98%	99%
$2,500,000	100%	99%	99%
$2,600,000	100%	99%	99%
$2,700,000	100%	99%	99%
$2,800,000	100%	99%	99%
$2,900,000	100%	100%	100%

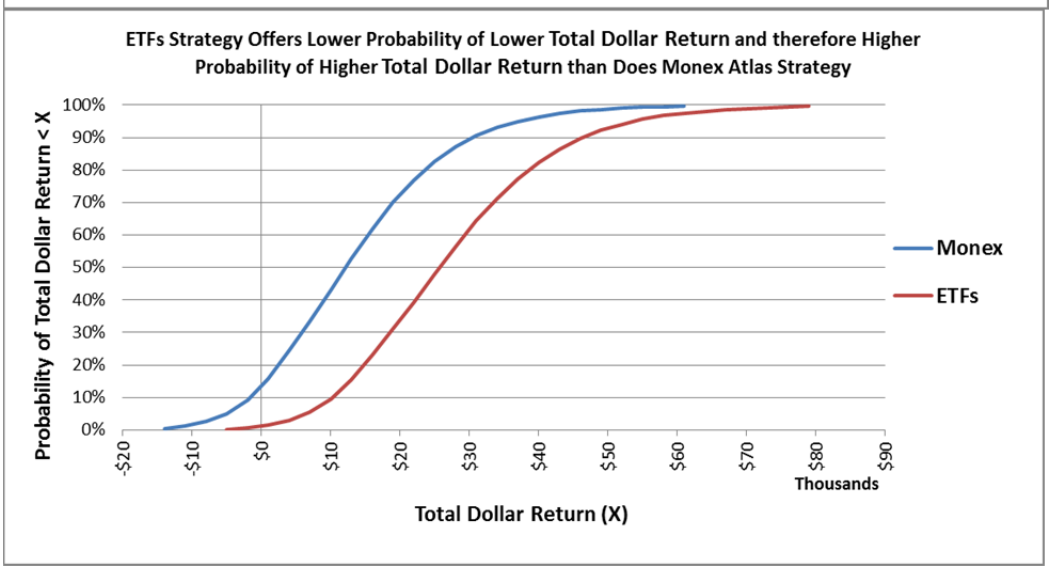




ABEEL transaction

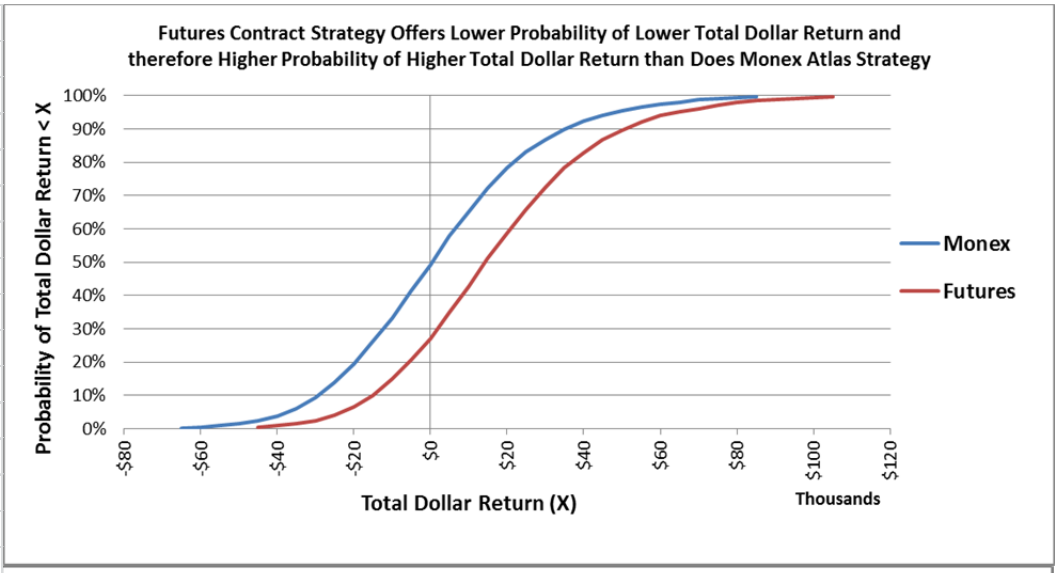
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$14,000	0%	0%	0%
-$11,000	1%	0%	0%
-$8,000	3%	0%	0%
-$5,000	5%	0%	0%
-$2,000	9%	0%	1%
$1,000	16%	1%	2%
$4,000	25%	2%	3%
$7,000	33%	5%	6%
$10,000	43%	8%	9%
$13,000	53%	13%	15%
$16,000	62%	19%	23%
$19,000	70%	27%	31%
$22,000	77%	34%	40%
$25,000	83%	43%	48%
$28,000	87%	51%	56%
$31,000	91%	59%	64%
$34,000	93%	66%	71%
$37,000	95%	72%	77%
$40,000	96%	77%	82%
$43,000	97%	82%	86%
$46,000	98%	86%	90%
$49,000	99%	89%	92%
$52,000	99%	92%	94%
$55,000	99%	93%	96%
$58,000	99%	95%	97%
$61,000	100%	96%	98%
$64,000	100%	97%	98%
$67,000	100%	98%	99%
$70,000	100%	98%	99%
$73,000	100%	99%	99%
$76,000	100%	99%	99%
$79,000	100%	99%	100%
$82,000	100%	99%	100%
$85,000	100%	100%	100%

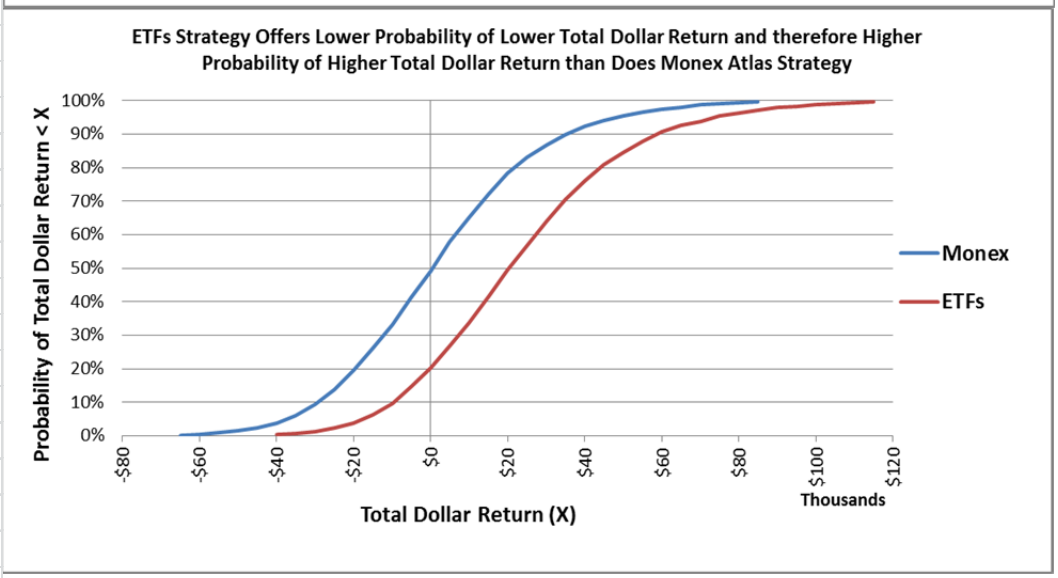




ADDINGTON transaction

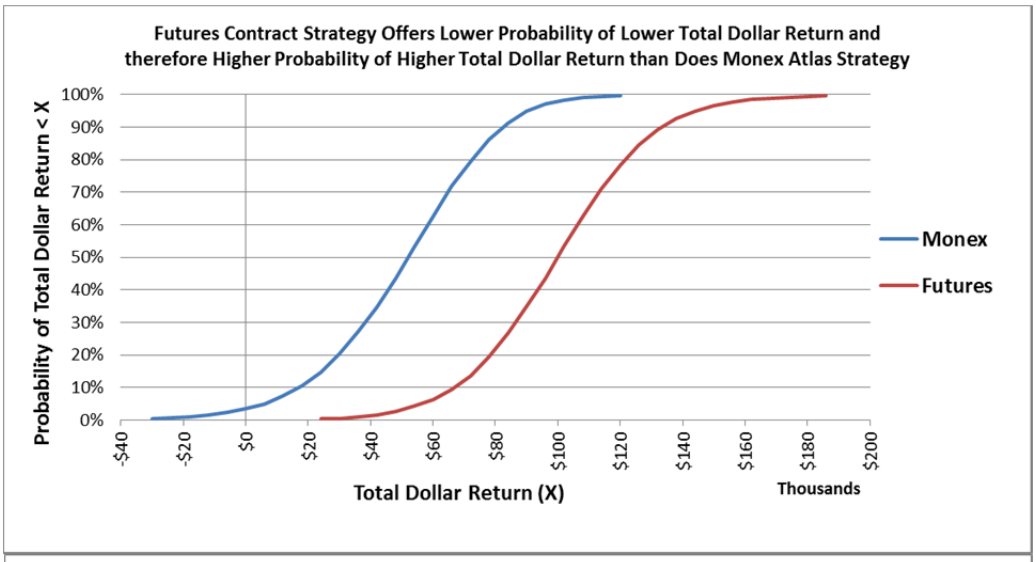
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$65,000	0%	0%	0%
-$60,000	1%	0%	0%
-$55,000	1%	0%	0%
-$50,000	1%	0%	0%
-$45,000	2%	0%	0%
-$40,000	4%	1%	0%
-$35,000	6%	1%	1%
-$30,000	9%	2%	1%
-$25,000	14%	4%	2%
-$20,000	19%	6%	4%
-$15,000	26%	10%	6%
-$10,000	33%	15%	10%
-$5,000	41%	21%	15%
$0	49%	27%	20%
$5,000	58%	35%	27%
$10,000	65%	43%	34%
$15,000	72%	51%	42%
$20,000	78%	59%	49%
$25,000	83%	66%	57%
$30,000	87%	73%	64%
$35,000	90%	78%	71%
$40,000	92%	83%	76%
$45,000	94%	87%	81%
$50,000	95%	90%	85%
$55,000	97%	92%	88%
$60,000	97%	94%	91%
$65,000	98%	95%	93%
$70,000	99%	96%	94%
$75,000	99%	97%	95%
$80,000	99%	98%	96%
$85,000	100%	98%	97%
$90,000	100%	99%	98%
$95,000	100%	99%	98%
$100,000	100%	99%	99%
$105,000	100%	100%	99%
$110,000	100%	100%	99%
$115,000	100%	100%	100%

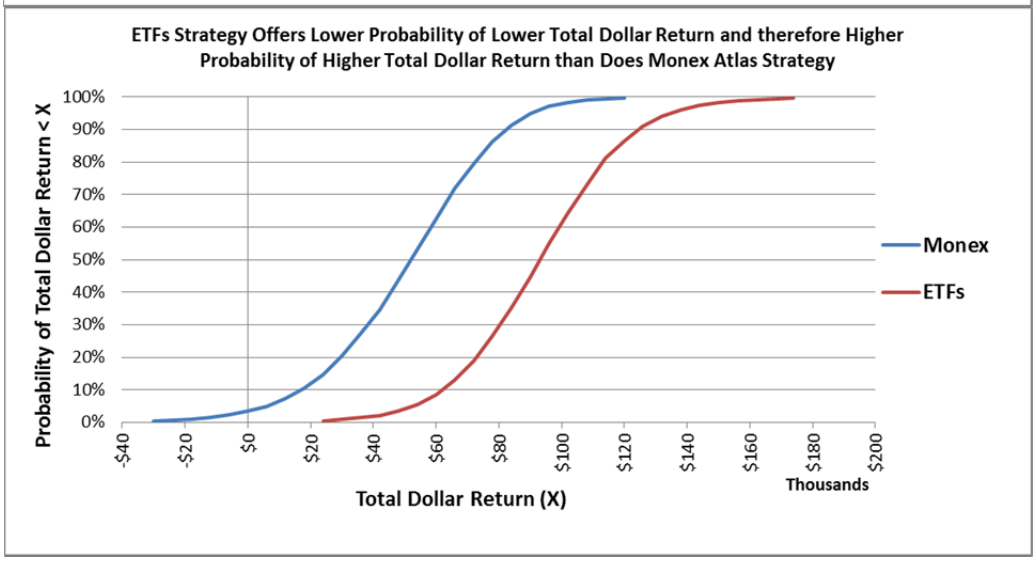




CASTILLO transaction

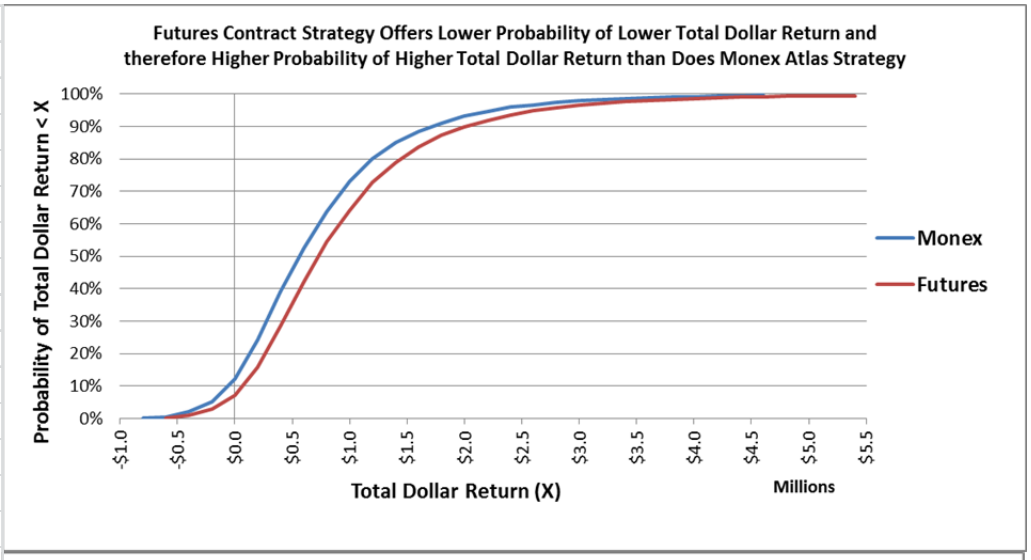
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$33,000	0%	0%	0%
-$23,000	1%	0%	0%
-$13,000	2%	0%	0%
-$3,000	3%	0%	0%
$7,000	5%	0%	0%
$17,000	10%	0%	0%
$27,000	17%	0%	1%
$37,000	28%	1%	1%
$47,000	42%	3%	3%
$57,000	58%	5%	7%
$67,000	73%	10%	14%
$77,000	85%	19%	25%
$87,000	93%	31%	40%
$97,000	97%	45%	57%
$107,000	99%	61%	72%
$117,000	100%	75%	84%
$127,000	100%	85%	91%
$137,000	100%	92%	96%
$147,000	100%	96%	98%
$157,000	100%	98%	99%
$167,000	100%	99%	99%
$177,000	100%	99%	100%
$187,000	100%	100%	100%

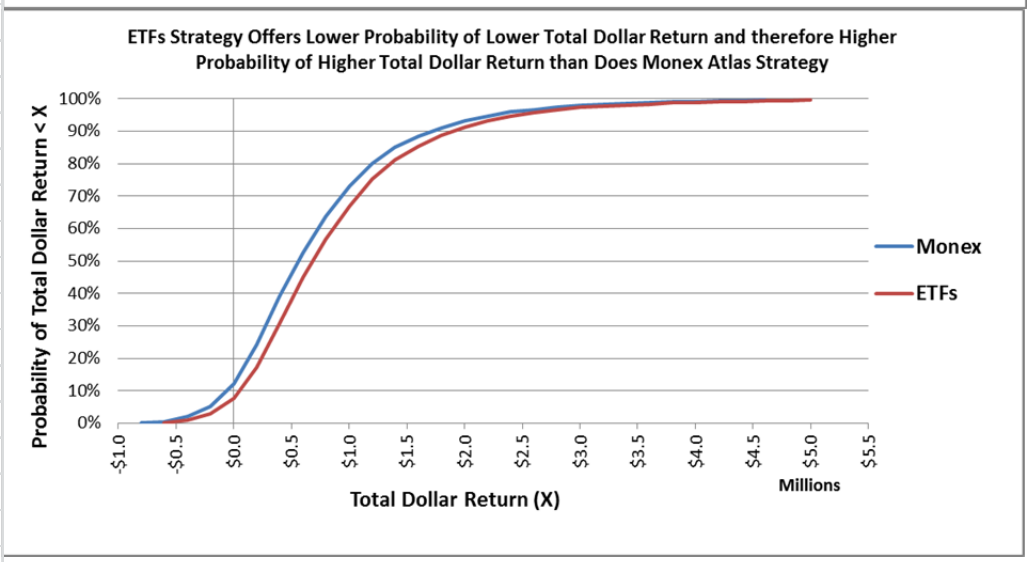




GEHRISCH transaction

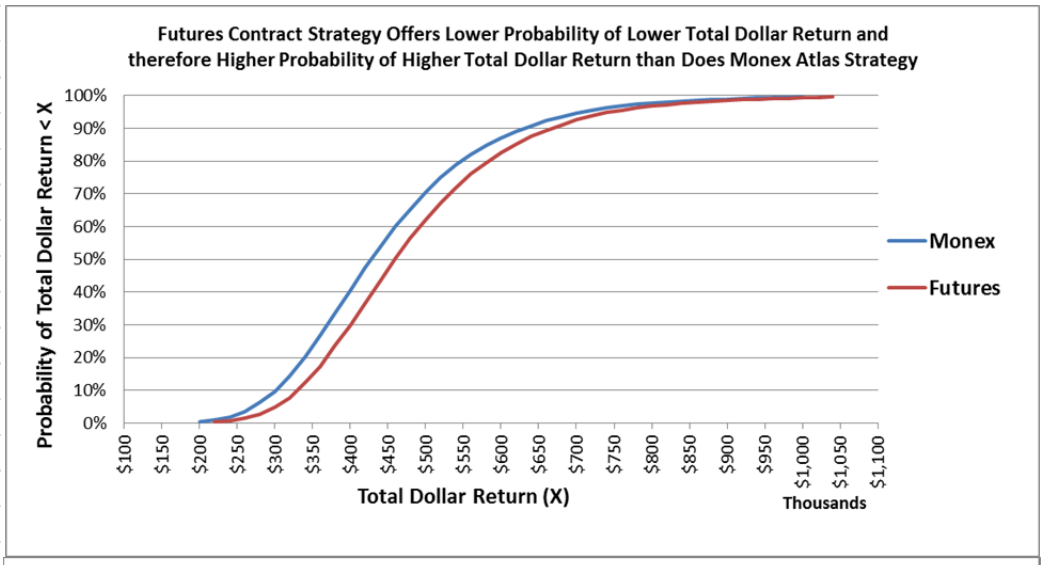
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$800,000	0%	0%	0%
-$600,000	1%	0%	0%
-$400,000	2%	1%	1%
-$200,000	5%	3%	3%
$0	12%	7%	8%
$200,000	24%	16%	17%
$400,000	39%	28%	31%
$600,000	53%	42%	45%
$800,000	64%	54%	57%
$1,000,000	73%	64%	67%
$1,200,000	80%	73%	75%
$1,400,000	85%	79%	81%
$1,600,000	89%	84%	85%
$1,800,000	91%	87%	89%
$2,000,000	93%	90%	91%
$2,200,000	95%	92%	93%
$2,400,000	96%	94%	95%
$2,600,000	97%	95%	96%
$2,800,000	98%	96%	97%
$3,000,000	98%	97%	97%
$3,200,000	98%	97%	98%
$3,400,000	99%	98%	98%
$3,600,000	99%	98%	98%
$3,800,000	99%	98%	99%
$4,000,000	99%	99%	99%
$4,200,000	99%	99%	99%
$4,400,000	99%	99%	99%
$4,600,000	100%	99%	99%
$4,800,000	100%	99%	99%
$5,000,000	100%	99%	100%
$5,200,000	100%	99%	100%
$5,400,000	100%	100%	100%

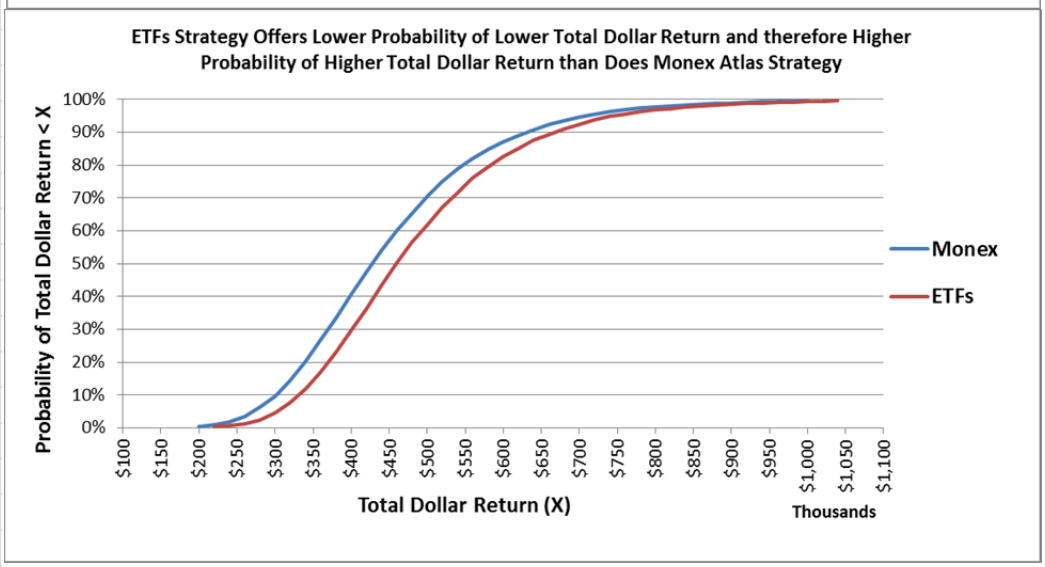




GIAMPAVOLOP transaction

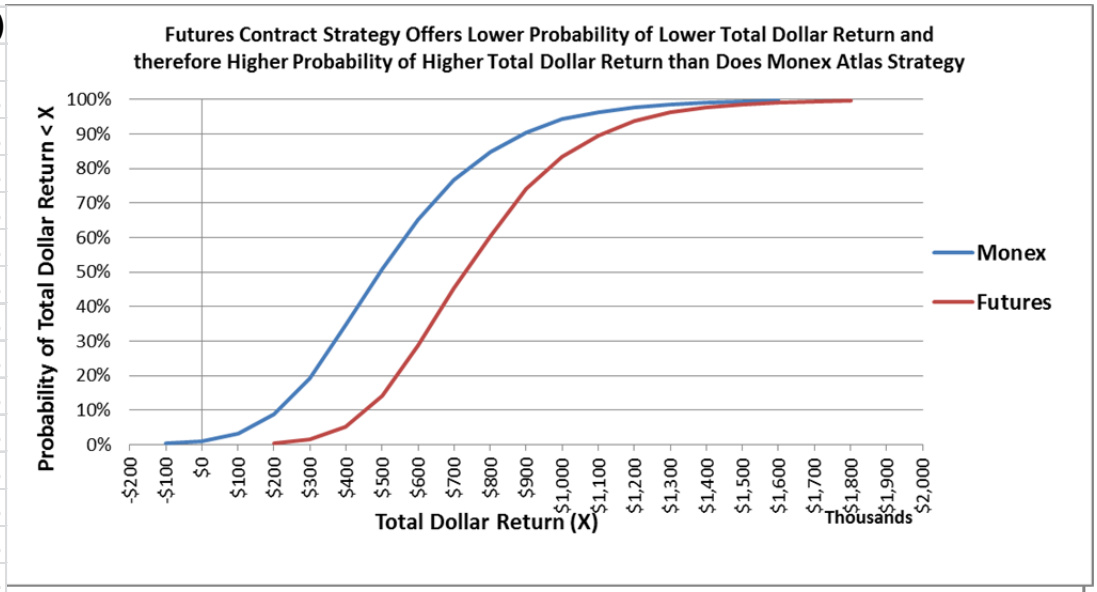
X	Probability (Return < X)		
	Monex	Futures	ETFs
$200,000	0%	0%	0%
$220,000	1%	0%	0%
$240,000	2%	1%	1%
$260,000	3%	2%	1%
$280,000	6%	3%	2%
$300,000	10%	5%	5%
$320,000	14%	8%	8%
$340,000	20%	12%	12%
$360,000	27%	17%	17%
$380,000	34%	24%	23%
$400,000	40%	30%	29%
$420,000	48%	37%	36%
$440,000	54%	44%	43%
$460,000	60%	50%	50%
$480,000	65%	57%	56%
$500,000	71%	62%	62%
$520,000	75%	67%	67%
$540,000	79%	72%	72%
$560,000	82%	76%	76%
$580,000	85%	79%	80%
$600,000	87%	83%	83%
$620,000	89%	85%	85%
$640,000	91%	88%	87%
$660,000	92%	89%	89%
$680,000	94%	91%	91%
$700,000	95%	93%	92%
$720,000	96%	94%	94%
$740,000	96%	95%	95%
$760,000	97%	96%	96%
$780,000	97%	96%	96%
$800,000	98%	97%	97%
$820,000	98%	97%	97%
$840,000	98%	98%	98%
$860,000	99%	98%	98%
$880,000	99%	98%	98%
$900,000	99%	99%	99%
$920,000	99%	99%	99%
$940,000	99%	99%	99%
$960,000	99%	99%	99%
$980,000	99%	99%	99%
$1,000,000	100%	99%	99%
$1,020,000	100%	99%	99%
$1,040,000	100%	100%	100%

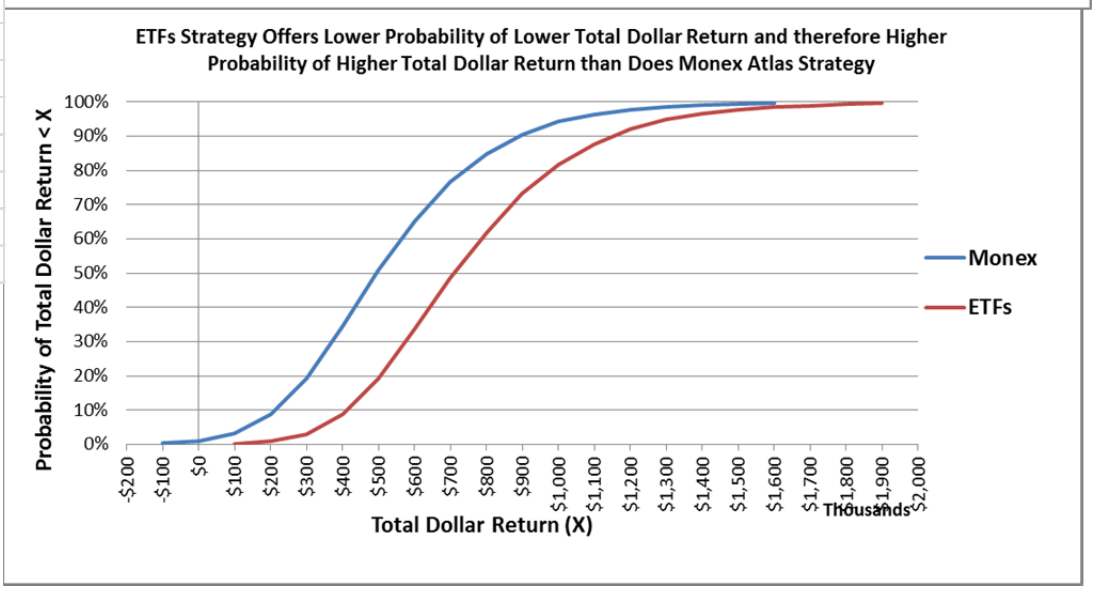




HOUGH transaction

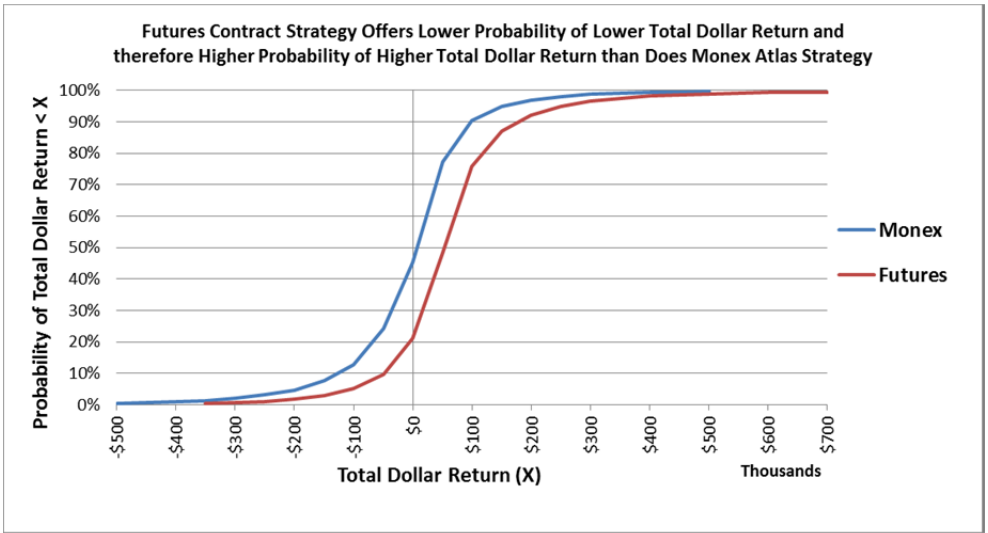
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$100,000	0%	0%	0%
$0	1%	0%	0%
$100,000	3%	0%	0%
$200,000	9%	0%	1%
$300,000	19%	2%	3%
$400,000	35%	5%	9%
$500,000	51%	14%	19%
$600,000	65%	29%	34%
$700,000	77%	45%	49%
$800,000	85%	60%	62%
$900,000	90%	74%	73%
$1,000,000	94%	84%	82%
$1,100,000	96%	90%	88%
$1,200,000	98%	94%	92%
$1,300,000	98%	96%	95%
$1,400,000	99%	98%	97%
$1,500,000	99%	99%	98%
$1,600,000	100%	99%	98%
$1,700,000	100%	99%	99%
$1,800,000	100%	100%	99%
$1,900,000	100%	100%	100%

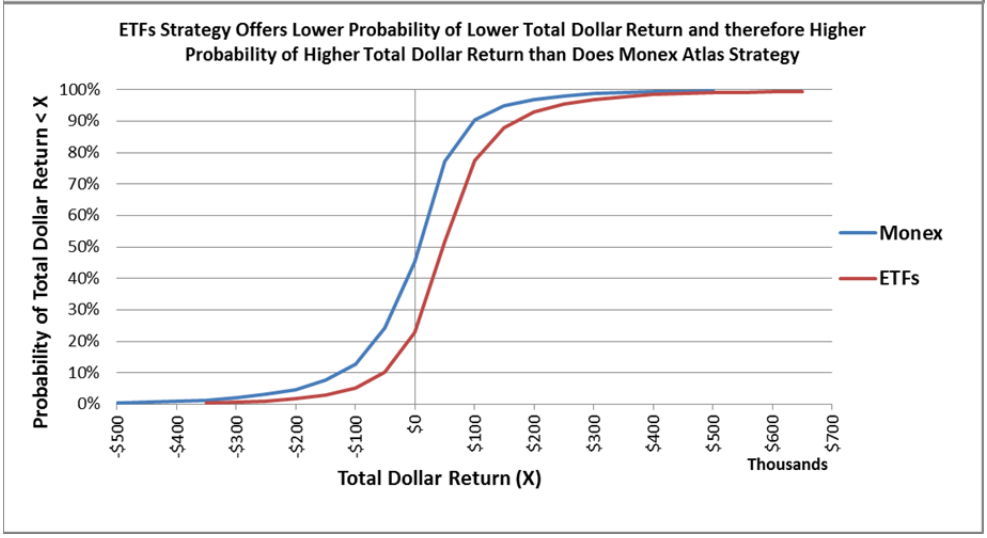




MINKE transaction

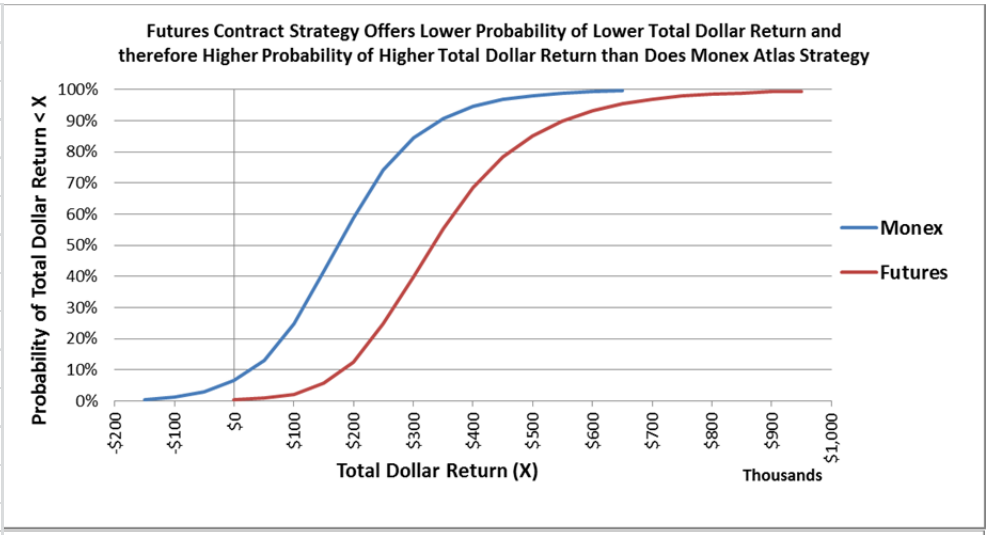
X	Probability (Return < X)		
	Monex	Futures	ETFs
-$500,000	0%	0%	0%
-$450,000	1%	0%	0%
-$400,000	1%	0%	0%
-$350,000	1%	0%	0%
-$300,000	2%	1%	1%
-$250,000	3%	1%	1%
-$200,000	5%	2%	2%
-$150,000	8%	3%	3%
-$100,000	13%	5%	5%
-$50,000	24%	10%	10%
$0	45%	21%	23%
$50,000	77%	48%	52%
$100,000	90%	76%	77%
$150,000	95%	87%	88%
$200,000	97%	92%	93%
$250,000	98%	95%	95%
$300,000	99%	97%	97%
$350,000	99%	98%	98%
$400,000	99%	98%	98%
$450,000	99%	99%	99%
$500,000	100%	99%	99%
$550,000	100%	99%	99%
$600,000	100%	99%	99%
$650,000	100%	99%	100%
$700,000	100%	100%	100%

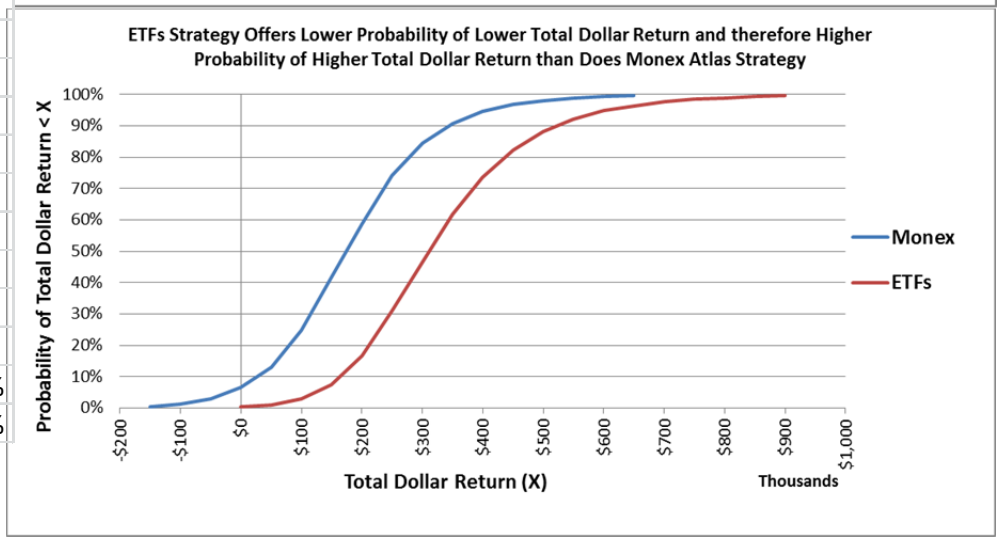




WALKER transaction

X	Probability (Return < X)		
	Monex	Futures	ETFs
-$150,000	0%	0%	0%
-$100,000	1%	0%	0%
-$50,000	3%	0%	0%
$0	7%	0%	0%
$50,000	13%	1%	1%
$100,000	25%	2%	3%
$150,000	42%	6%	8%
$200,000	59%	13%	17%
$250,000	74%	25%	31%
$300,000	84%	40%	47%
$350,000	91%	55%	62%
$400,000	95%	69%	74%
$450,000	97%	78%	82%
$500,000	98%	85%	88%
$550,000	99%	90%	92%
$600,000	99%	93%	95%
$650,000	100%	95%	96%
$700,000	100%	97%	98%
$750,000	100%	98%	98%
$800,000	100%	99%	99%
$850,000	100%	99%	99%
$900,000	100%	99%	100%
$950,000	100%	100%	100%





SAMAAN transaction

X	Probability (Return < X)		
	Monex	Futures	ETFs
-$4,500,000	0%	0%	0%
-$4,000,000	1%	0%	0%
-$3,500,000	1%	0%	0%
-$3,000,000	2%	0%	0%
-$2,500,000	3%	1%	1%
-$2,000,000	4%	1%	1%
-$1,500,000	7%	2%	2%
-$1,000,000	12%	3%	4%
-$500,000	20%	6%	7%
$0	34%	13%	15%
$500,000	53%	26%	29%
$1,000,000	71%	46%	49%
$1,500,000	82%	64%	66%
$2,000,000	88%	76%	78%
$2,500,000	92%	83%	85%
$3,000,000	94%	88%	89%
$3,500,000	96%	92%	92%
$4,000,000	97%	94%	94%
$4,500,000	98%	95%	95%
$5,000,000	98%	96%	96%
$5,500,000	99%	97%	97%
$6,000,000	99%	98%	98%
$6,500,000	99%	98%	98%
$7,000,000	99%	99%	99%
$7,500,000	99%	99%	99%
$8,000,000	100%	99%	99%
$8,500,000	100%	99%	99%
$9,000,000	100%	99%	99%
$9,500,000	100%	99%	100%
$10,000,000	100%	100%	100%